NUTATOR Mixer 421105

DESCRIPTION	CATALOG NUMBER	REFERENCE NUMBER
Nutator, 117V	421105	
Nutator, 220V	421106	
Mat	421506	42110504
Switch	421505	42110502
Motor, 117V	421504	42110501
Motor, 220V	421507	42110601
Plastic shaft	429608	
Unavailable parts		
Line cord	old cat# 42110503	42110503

OPERATING and REPAIR INSTRUCTIONS For

CLAY ADAMS® Brand

Nutator

Models 421105 (117 V) and 421106 (220 V)

Caution: Read Instructions thoroughly before operating this equipment.

The CLAY ADAMS Brand Nutator Mixer is a laboratory aliquot shaker for keeping or re-suspending colloidal mixtures in a uniform suspension. Typical laboratory applications for the Nutator include maintaining the homogeneous suspension of blood cells in collection tubes prior to the dilution of specimens for testing in blood cell counters.

DESCRIPTION

The Nutator is constructed of durable cast and sheet aluminum. It is designed to produce a unique precessional motion for holding blood cells in suspension without forming bubbles or foam which might cause erroneous counts, particularly in electronic cell counters.

The Nutator and specimen tray can accommodate the following numbers and types of containers.

15 each:	7 mL, 10 mL or 15 mL Blood Collection Tubes
24 each:	Pediatric Blood Collection Tubes
16 each:	UNOPETTE® Disposable Diluting Pipettes
16 each:	Serum Bottles

Larger containers, up to 1¾ lbs. maximum in weight, can also be accommodated. NOTE: Special care should be taken to prevent larger containers from falling off the specimen tray during mixing.

GENERAL PRECAUTIONS

Connect the Nutator only to an approved power source having a 3-wire grounded receptacle. Where only a 2-wire receptacle is available, have it replaced with a properly grounded 3-wire receptacle in accordance with the National Electrical Code. Do not, under any circumstances, remove the grounding prong from the power plug. Should the power cord and plug become cracked, frayed, broken or otherwise damaged, they should be replaced immediately by an authorized serviceman.

The operator should not perform any repairs, except as specifically stated in this Instruction Sheet. Refer all other service problems to your nearest Becton Dickinson equipment dealer, or for assistance in the United States, call the Technical Service Department at Becton Dickinson Primary Care Diagnostics: 1-800-631-8064.

Use of the Nutator for laboratory purposes places a responsibility upon administrative personnel for the adequate training of personnel in its safe and effective operation. Administrative personnel should insure that all operators and technicians receive adequate training before being permitted to operate the Nutator.

Connect the power cord of the Nutator only to the correct power 3-wire grounded outlet, as follows:

Model 421105	117 VAC	50–60 Hz	.030 Amps
Model 421106	220 VAC	50–60 Hz	.015 Amps

OPERATION

To start the Nutator, rotate the power switch in a clockwise direction until an audible click is heard.

Further clockwise rotation of the switch will turn the unit off. NOTE: The Nutator may be operated continuously without damage to the motor.

Specimens may be added or removed from the mixing tray without stopping the Nutator or disturbing other samples. If required, the tray can be momentarily held in a stalled position to load or unload specimens. For best results, specimens should be placed in the center of the tray.

CAUTION:
Do not stall Nutator for an extended period, since damage to the motor and linkages may result.

SPECIFICATIONS

Voltage:	Model 421105	117 VAC 50–60 Hz
	Model 421106	220 VAC 50–60 Hz
Current:	Model 421105	.030 Amps
	Model 421106	.015 Amps
Net Weight:	2.1 lbs.	
Shipping Weight:	2.5 lbs.	
Dimensions:	5⅛" deep x 9½" wide x 5¾" (max.) high	

MAINTENANCE

The Nutator is permanently lubricated and requires no maintenance other than cleaning with a mild detergent. The synthetic rubber (BUNA-S) mat in the mixing tray can be removed for cleaning or for replacement when worn. Clean the rubber mat only in a mild detergent solution. The Nutator should be wiped periodically with a damp cloth. DO NOT SUBMERGE.

SERVICE AND REPAIR

Replacement parts for the Nutator are shown in Figure 1 and can be ordered through your nearest Becton Dickinson equipment dealer. All service should be performed only by trained and authorized personnel.

WARNING:
Always disconnect power cord from power receptacle before attempting to disassemble the Nutator.

Internal repairs and parts replacements require removal of the bottom cover. Remove cover by removing four screws and lock washers which secure the cover to the aluminum housing. Follow the replacement procedures below.

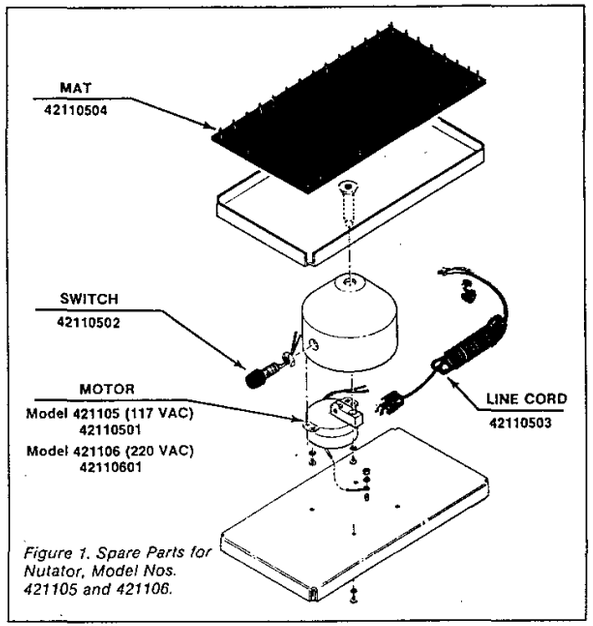

Figure 1. Spare Parts for Nutator, Model Nos. 421105 and 421106.

To Replace Switch *(see Figure 2)*

1. Cut the two switch wires just inside the base enclosure. Remove the nut that retains the switch. Remove old switch, insert new switch assembly and re-install retaining nut.
2. Cut the new switch wires to 2½" and strip ⅜" from ends. Strip ⅜" from the wires cut from the old switch and splice to the new switch wires. Cover the splices with electrical tape or wire nuts.
3. Replace bottom cover plate.

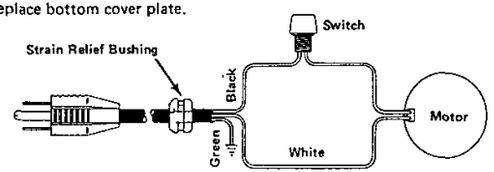

Figure 2. Wiring Schematic

To Replace Motor *(see Figure 3)*

1. Cut the two wires connecting the motor to the switch and line cord.
2. Remove the two screws and lockwashers which mount the motor to the casting.
3. Grasp the Nutator tray and rotate it by hand until the eccentric arm is visible at the side of the motor. Remove the arm-connecting screw.
4. The motor may now be removed. Using a 3/32" Allen-head wrench, remove the eccentric arm from the old motor and install arm on shaft of new motor.
5. Install new motor into housing, strip and splice the wiring. Cover the splices with electrical tape or wire nuts. Replace bottom cover.

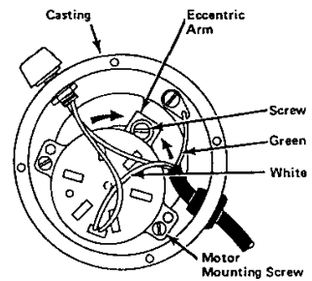

Figure 3. Removing Motor Assembly

To Replace Line Cord *(see Figures 2 and 3)*

1. Using pliers, compress and remove the strain relief bushing. Remove the terminal screw holding the green ground lug. Cut the black and white wires about 1" inside the housing.
2. Insert the new line cord. Replace the strain relief bushing.
3. *Make certain that the ground lug on the green wire is reconnected to the casting by the terminal screw.*
4. Strip ⅜" from the wires coming from the switch and the motor.
5. Connect the black line cord wire to the switch and the white wire to the motor. Reassemble bottom cover plate.

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